

Appl. No. : 09/532,536
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REMARKS

By this paper, the Applicant has amended Claims 1, 21, and 41. Thus, Claims 1-42 remain pending in the application and are presented for further examination. Additionally, the Applicant has amended the specification to correct a typographical error on page 5 of the specification as originally filed. No new matter has been introduced by said amendments.

I. Discussion of Rejection of Claims 1-30, 41 and 42 Under 35 U.S.C. § 103(a)

In paragraph 2 of the Office Action, the Examiner rejected Claims 1-30, 41 and 42 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,421,377 to Langberg. In rejecting Claims 1, 21, and 41, the Examiner stated that “fig. 3 teaches echo cancellation over asymmetric spectra wherein Decimator 110 reduces the sampling rate of the filtered signals from first sampling rate to the second sampling (See col. 5, lines 58+) and the Echo Estimator 180 estimates the echo signal based on the filter signal.” *O.A. at page 2*. The Examiner further stated that “Fig. 3 fails to explicitly teach ‘filtering the transmitted signal signals ...at least one-half of the predetermined data rate’.” *Id.* The Examiner argued that “it is known that the low-pass filter [of the Decimator 110] allow signals to pass that are at frequencies above half the Nyquist rate in order to ensure that all information can be extracted and the inherent aliasing will not corrupt the original signal.” *Id. at page 2*. Hence, the Examiner argued, one skilled in the art would have been motivated to filter the transmitted signal at least one-half of the first sampling rate to ensure that all information can be extracted. *Id.* In rejecting Claims 11 and 42, the Examiner stated that “when the transmitted signal is lower than [sic] the received signal, then the Decimator 110 increases the data rate for rate matching.” *O.A. at page 4*. For the reasons set forth below, the Applicant submits that Langberg does not teach or suggest all of the limitations of Claims 1-30, 41 and 42.

A. The Law of Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met: (1) there must be some suggestion or motivation to combine the reference teachings, (2) there must be a

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reasonable expectation of success, and (3) the references when combined must teach or suggest all of the claim limitations. See *M.P.E.P.* § 2143. It is well settled that “a showing of a suggestion, teaching or motivation to combine the prior art references is an ‘essential component of an obviousness holding’.” See, e.g., *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d 1456, 1459 (Fed. Cir. 2000). The Examiner can satisfy the burden of showing obviousness of the combination “only by showing some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.” *In re Fitch*, 972 F.2d 1260, 1265, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). “Determination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.” *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998).

B. Langberg Does Not Teach or Suggest all of the Limitations of Claims 1-31, 41 and 42

With respect to Claim 1, the Applicant has amended Claim 1 to clarify that the lower data rate is determined based at least in part on the frequency portion of the transmitter signals that coincide with bandwidth of the echo signals. The Applicant submits that no new matter has been introduced. As explained in the specification, only frequency portion of the transmit signal (from the digital modulator 312) that coincides with the bandwidth of the echo channel is expected to appear as echo at the receiver of the CO system 300. *Spec. at pp. 9, lines 27-31*. Thus, frequency components of the transmit signal in the frequency band of $0 - f_s(J/2K)$ Hz are sufficient to reconstruct the echo signals by the EC subsystem. *Id. at pp. 9-10*. The Applicant submits that nowhere does, and the Examiner did not point out where does, Langberg teach or suggest a method comprising reducing the data rate to a lower data rate determined based at least in part on the frequency portion of the transmitter signals that coincide with bandwidth of the echo signals, as recited in Claim 1. Further, the Applicant respectfully disagrees with the Examiner’s assertion that one skilled in the art would have been motivated to filter the transmitted signal at least one-half of the first sampling rate. The Examiner must satisfy the burden of showing obviousness of the combination “only by showing some objective teaching in

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the prior art or knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.” *In re Fitch*, 972 F.2d 1260, 1265, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). Thus, the Applicant submits that it would not have been obvious to one of ordinary skill in the art to recognize all the limitations of Claim 1 in view of Langberg.

Therefore, the Applicant submits that Claim 1 is allowable. Since independent Claims 21 and 41 include at least the patentable distinctions recited in Claim 1, the Applicant submits that Claims 21 and 41 are also patentable. Since each of Claims 2-10 and 22-30 depends either directly or indirectly on one of Claims 1 and 21, the Applicant submits that those claims are also allowable.

With respect to the rejection of Claims 11-20 and 42 under 35 U.S.C. § 103(a), the Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness in light of the prior art. As noted above, in rejecting Claims 11 and 42, the Examiner stated that “when the transmitted signal is lower that [sic] the received signal, then the Decimator 110 increases the data rate for rate matching.” *O.A. at page 4*. The Applicant submits that Langberg fails to teach or suggest all of the limitations of Claims 11-20 and 42. More particularly with respect to Claim 11, Langberg fails to teach or suggest increasing the data rate of the transmitted signals from the second data rate to a higher data rate, as recited in Claim 11. The Examiner’s assertion that the Decimator 110 increases the data rate for rate matching is not supported by Langberg itself or in the art. More particularly, Langberg expressly states that “the first decimator 110 filters an incoming signal 112 having a first sampling rate on said transmit path 102 and emits a signal output 114 at a second, reduced sampling rate.” (emphasis added) *Langberg at col. 5, ll. 65-67 through col. 6, ll. 1-2*. Generally, the operation of extracting every Nth sample is commonly referred to as *decimation*. *Oppenheim et al. “Signals and Systems”, p. 548 (1983) (copy attached hereto)*. Thus, by definition, a decimator *decreases* a data rate. Accordingly, the Decimator 10 does not and cannot increase, but only reduces, the data rate. Therefore, even if Langberg were to disclose all of other limitations alleged by the Examiner, Langberg still fails to teach all of the limitations of Claim 11. There would not have been a motivation to modify the teachings of Langberg and recognize all of the limitations of Claim 11.

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Therefore, the Applicant submits that Claim 11 is allowable. Since independent Claim and 42 includes at least the patentable distinctions recited in Claim 11, the Applicant submits that Claim 42 is also patentable. Since each of Claims 12-20 depends either directly or indirectly on Claim 11, the Applicant submits that those claims are also allowable.

II. Discussion of Rejection of Claims 31-36 and 38-40 Under 35 U.S.C. § 102(e)

In paragraphs 3 and 4 of the Office action, the Examiner rejected Claims 31-36 and 38-40 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,421,377 to Langberg. In rejecting independent Claim 31, the Examiner stated that Langberg teaches “echo cancellation over asymmetric spectra comprising Decimator on the receive path (a first up-sampler) that increased the receive [sic] sampling rate to the first sampling rate at the transmitter; the Decimator 110 (a second up-sampler) that matches the sampling rate of the filtered signals from first sampling rate to the second sampling (See col. 5, lines 58 +) and the Echo Estimator 180 estimates the echo signal based on the filter signal.” *O.A. at page 4*. For the reasons stated below the Applicant submits that Claims 31-36 and 38-40 are patentable.

A. The Law of Anticipation

Anticipation under Section 102 can be found only if a reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775 (Fed. Cir. 1985). More particularly, a finding of anticipation requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention. *Electro Med. Sys. S.A. v. Cooper Life Sciences*, 34 F.3d 1048, 1052 (Fed. Cir. 1994). “To anticipate, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim.” *Brown v. 3M*, 265 F.3d 1349 (Fed. Cir. 2001). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970).

B. Discussion of Distinctions of Claims 31-36 and 38-40 in View of U.S. Patent No. 6,421,377 to Lanberg

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As noted above, in rejecting Claim 31, the Examiner stated that Lanberg teaches "echo cancellation over asymmetric spectra comprising Decimator on the receive path (a first up-sampler) that increased the receive [sic] sampling rate ..." *O.A. at page 4*. It is well settled that a finding of anticipation requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention. *Electro Med. Sys. S.A. v. Cooper Life Sciences*, 34 F.3d 1048, 1052 (Fed. Cir. 1994). The Applicant submits that Langberg fails to teach or suggest all of the limitations of Claims 31-36, and 38-40. More particularly, Langberg fails to teach or suggest a system comprising a first upsampler that is configured to increase the data rate of the transmitted signals from the second data rate to a higher data rate, as recited in Claim 31. As discussed in connection with Claims 11 and 42 above, the Examiner's assertion that the Decimator 110 increases the data rate is not supported by Langberg itself or in the art. More particularly, Langberg expressly states that "the first decimator 110 filters an incoming signal 112 having a first sampling rate on said transmit path 102 and emits a signal output 114 at a second, reduced sampling rate." (emphasis added) *Langberg at col. 5, ll. 65-67 through col. 6, ll. 1-2*. As noted above, the operation of extracting every Nth sample is commonly referred to as *decimation*. *Oppenheim et al. "Signals and Systems", p. 548 (1983) (copy attached hereto)*. Thus, the Decimator 10 cannot increase, but only reduces, the data rate. Therefore, even if Langberg were to disclose all of other limitations alleged by the Examiner, Langberg still fails to teach all of the limitations of Claim 31. Moreover, there would not have been a motivation to modify the teachings of Langberg and recognize all of the limitations of Claim 31.

Therefore, the Applicant submits that Claim 31 is allowable. Since each of Claims 32-36 and 38-40 depends either directly or indirectly on Claim 31, the Applicant submits that those claims are also allowable.

III. Discussion of Rejection of Claim 37 Under 35 U.S.C. § 103(a)

In paragraph 5 of the Office Action, the Examiner rejected Claim 37 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,421,377 to Lanberg. For the reasons set forth below, the Applicant submits that Lanberg does not teach or suggest all of the limitations of Claim 37.

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Since Claim 37 depends on Claim 31, the Applicant submits that those claims are also allowable.

V. CONCLUSION

Applicant has endeavored to address all of the Examiner's concerns as expressed in the Office Action. Accordingly, the reasons therefor, and arguments in support of patentability of the pending claim set are presented above. Any claim amendments which are not specifically discussed in the above remarks are made in order to improve the clarity of claim language, to correct grammatical mistakes or ambiguities, and to otherwise improve the clarity of the claims to particularly and distinctly point out the invention to those of skill in the art. Finally, Applicant submits that the claim limitations above represent only illustrative distinctions. Hence, there may be other patentable features that distinguish the claimed invention from the prior art.

The Examiner is reminded that "whenever, on examination, any claim for a patent is rejected, or any objection ... made, notification of the reasons for rejection and/or objection together with such information and references as may be useful in judging the propriety of continuing the prosecution (35 U.S.C. 132) should be given." *M.P.E.P.* § 707.

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections and, particularly, that all claims be allowed. If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully invited to call the undersigned.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,
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